Health Facility Survey
Nicaragua 2001

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MEASURE *Evaluation*
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Executive Summary

1. Introduction

This report presents principal results from the survey of health facilities carried out between August and October 2001 in Nicaragua's 17 Local Systems of Integrated Health Care (SILAIS). The principal objective of the survey was to obtain information about the operating capacity of the health care facilities that offer basic health services to the population, with special attention to maternal and child health services, and the characteristics of health care facility staff. The survey intended to collect information from all of public health facilities of the Ministry of Health (MINSA), as well as from a significant number of private facilities. The results of the survey describe the basic characteristics of an important component of the supply of health services in Nicaragua at the time that the survey was carried out. Furthermore, the survey provides useful information to health authorities that allows them to identify problems occurring in the provision of services, and therefore, to direct interventions to improve these respective services. Additionally, this survey permits examination of changes in the conditions of the public health facilities that have taken place in the nine SILAIS in which the *2000 Health Facility Survey – Nicaragua (HFS-2000)* was carried out. These SILAIS include Chinandega, León, Nueva Segovia, Madriz, Estelí, Chontales, Boaco, Matagalpa and Jinotega.

The use of both surveys makes possible examination of changes that have occurred in the health facilities of the seven SILAIS that compose the priority area for *USAID's Post-Hurricane Mitch Reconstruction and Recuperation Program* in Nicaragua. Over the almost three-year period between 1999 and 2001, the public health component of this program has assisted in the rehabilitation and expansion of health services and water and sanitation in the zones that were affected by the hurricane. The 30 million dollar program concentrated its activities in the north and northeast of the country. This report includes an appendix in which the results for the years 2000 and 2001 are presented from an ensemble of basic indicators on health facilities in the priority area of this important program. These indicators permit to examine the achievements carried out by the program (See Appendix A).

The design, planning and implementation of the survey was coordinated principally by the *Dirección General de Planificación y Desarrollo*, the *Dirección General de Servicios de Salud* and the *Dirección General de Salud Ambiental y Epidemiología* of MINSA, in collaboration with the MEASURE *Evaluation* Project.

The information from this survey complements the data that is regularly collected by MINSA's information system. Both sources of information constitute valuable tools for monitoring the conditions existing in the health units and for monitoring their performance. MINSA's information system collects mainly data on health service outputs, while this survey collects information on inputs and availability of services. Furthermore, this survey provides information about territorial variation in the availability of health services and the operating capacity of the health units. This information can help to identify problems of territorial equity in the distribution of public resources earmarked for health care services.

2. Country Background

The Republic of Nicaragua is located on the isthmus of Central America. With a land area of 120,349 square kilometers, it is the largest country in Central America. With an annual rate increase of 2.7 percent, Nicaragua has one of the fastest growing populations in the Latin American and Caribbean region. It is estimated that the population surpassed 5.2 million in the year 2001. MINSA is the principal provider of health services in the country. According to information from MINSA, the network of public health facilities consists of 1,051 facilities, with a potential coverage of more than three million people.

The Local Systems of Integrated Health Care (SILAIS) serve as the health authorities at the regional level and are semi-autonomous. The network of public health facilities consists of hospitals, health centers with and without beds, and health posts.

3. Methodology

Objectives of the Survey

The primary objective of the survey was to collect information about the basic characteristics of the public health facilities of MINSA and of the private facilities that offer services in maternal and child health. A second objective was to collect information about the characteristics of the public health facilities' staff. The survey also collected information on each health facilities' geographic locations. It is important to clarify that, in this survey, the category, "public facilities" includes only MINSA facilities and the category "private facilities" includes private hospitals, private clinics, NGO-administered clinics, *empresas médicas previsionales,* and maternity houses.

Sample Coverage

The objective of the survey was to visit all of the public health facilities of MINSA located in the country's 17 SILAIS. The sample, therefore, consisted of all of the departmental hospitals, health centers with beds, health centers without beds, and health posts. MINSA provided a complete listing of all of its health facilities that was, subsequently, checked for completeness and accuracy by authorities and representatives from the SILAIS and the municipalities. The original list included 1,051 facilities. During the field work (August – October 2001), it was found that 22 of the facilities were closed, 4 had absent health staff, 13 did not exist, 9 did not correspond with the objectives of the survey (they were *casas bases* or specialized facilities), and 9 had duplicated names. Furthermore, it was not possible to visit 8 facilities. Nevertheless, 25 facilities were encountered that were not included in the original list. In total, the survey collected information about 1,011 public facilities. Also, 203 private health facilities were visited. Private health facilities were selected for inclusion in the survey based on whether they provided laboratory or pharmacy services and whether they offered maternal and child health care services. Also, a sample of 1,991 staff members from the public health facilities were interviewed. There were no incomplete interviews or refusals to participate.

Data Collection Instruments

The survey units of observation are the health facility and the staff. The following data collection instruments were used:

- **Public Facility Questionnaire:** This is the principal questionnaire of the survey. It was implemented in a face-to-face interview with the director or with the staff member in charge of the health facility. This questionnaire is organized by type of service and collects information on the availability of services, staff, level of staff training, group talks, basic infrastructure, supervision, and facility problems. It was based on the questionnaire used the year before in the HFS-2000.
- **Inventory Form for Equipment and Other Materials**: This form was used in a direct, face-to-face interview with the director of the health facility. In many cases, the interviewer also directly observed the availability of materials, equipment, and medications in the facility. There are two versions of this questionnaire: the first for the health centers and a shorter second version, for the health posts.
- **Health Facility Staff Questionnaire**: This questionnaire was used in direct, face-to-face interviews with the health staff of the public health facilities. The questionnaire obtains information about general characteristics of the staff; type and length of training received; and number of years in the current position, the facility, MINSA and in the health sector. This questionnaire also included questions regarding the staff current housing.

- **Private Health Facility Questionnaire**: This questionnaire was used to carry out direct, face-to-face interviews with the director or person-in-charge of the private health facility. This questionnaire is a shorter version of the *Public Facility Questionnaire* adapted to the conditions of the private sector.
- **Geographic Location Form**: This form was used to register the coordinates of a health facility's geographic location obtained with GPS (Geographical Positioning System) receivers.

Training, Fieldwork and Data Processing

Fieldwork was carried out by ten two-person survey teams composed of health professionals familiar with Nicaragua's health care system. In August, 2001, interviewer workshops on filling in the questionnaires, survey procedures and use of the GPS receivers were carried out. Fieldwork started on August 20, 2001. The survey teams worked with the directors in each of their assigned SILAIS to update the listings of health facilities and to establish a timeline for visiting each municipality. Access routes were established in consultation with the municipal directors. The interviews were carried out with the staff member in charge of the facility or with the staff member that had been working at the facility for the longest amount of time. At the end of working day, supervisors reviewed the questionnaires and verified the consistency of the responses. Fieldwork ended on October 26, 2001. The information gathered was processed using EPI INFO, EXCEL and Stata. Data cleaning and analysis were carried out in Nicaragua and in North Carolina.

4. Results

4.1 Number of health facilities and years of operation

- The total number of facilities visited was 1,214. Of those, 1,011 are public facilities of MINSA and 203 are private. In the group of public facilities, 25 hospitals, 28 health centers with beds, 144 health centers without beds, and 814 health posts were identified.
- The greatest concentration of public health facilities is located in Managua, León, Chinandega, RAAN and Matagalpa.
- The distribution of facilities among the SILAIS correlates to the population size, epidemiologic profile and population dispersion within each SILAIS' territory. Managua, Matagalpa, Chinandega, and León are the SILAIS with largest populations and with the greatest number of facilities. The high number of facilities in RAAN can be explained by the dispersion of the population over an extensive territory. Matagalpa is the SILAIS with the largest population served per hospital, while the health posts of Managua and Masaya serve the greatest number of persons per post.
- Hospitals have been operating for a longer period of time than health posts (an average of 42 and 11 years, respectively). The number of years that the hospitals had been in operation varied notably: the Hospital Amistad Japón Nicaragua (previously named Hospital San Juan de Dios) has been in operation for over 200 years. In comparison, the Hospital del Maestro de Carazo was constructed in 2001. Also, the number of years of operation of the health posts varies between 60 and 0 years (27 posts opened for operation in 2001).

4.2 Availability of Health Services

Maternal Health

- Prenatal care, vaccinations of pregnant women, iron supplements, postnatal care and postnatal counseling services are offered in almost all public health facilities.
- Normal delivery care was reported to be offered in 84% of all public hospitals, in 100% of the health centers with beds, in 63.2% of the health centers without beds, and in 34.5% of the health posts. 39.9% of the private health facilities reported that they offer this service.
- Specialized services that require more specialized equipment and personnel, such as cesarean section or treatment of delivery and abortion complications, are primarily offered in the hospitals. In general, the health posts and health centers without beds offer many of the preventative services related to

pregnancy; hospitals primarily offer curative services and health centers with beds tend to provide both kinds of services.

- With the exception of delivery care, reportedly offered in 75.8% of its facilities, RAAS is the SILAIS with the least availability of maternal health services.
- The availability of delivery services varies notably by SILAIS: 79.6% of Jinotega's facilities reported that they offer these services. In contrast, only 12.9% of the facilities in Carazo provided delivery services.
- The provision of delivery care services increased significantly in each of the nine SILAIS included in the 2000 survey. In particular, in Boaco it increased from 28.1% in 2000 to 58.1% in 2001, in Madriz it increased from 32.1% to 57.6%, and in Jinotega it increased from 60.4% to 79.6% of its public facilities.

Child Health

- Vaccination for BCG, polio, DPT, *pentavalente*, and MMR are offered in more than 92% of public facilities.
- More than 92% of the public facilities offer consultations on *AIEPI* (Integrated Management of Childhood Illness), perinatal care, oral rehydration therapy, and iron supplementation.

Family Planning

- Oral contraceptives, injectables and condoms are the family planning methods that are regularly provided in the public health facilities. Each of these services is offered in over 97% of the public health facilities.
- IUDs are regularly offered in almost all of the health centers, while hospitals are the primary providers of surgical sterilization.
- The availability of family planning services is high in all SILAIS. The greatest variation in methods provided per SILAIS is in the availability of IUD services and male and female sterilization.
- Relative to the results of previous survey (HFS-2000), the public facilities continue to maintain a high availability of oral contraceptives, injectables and condoms. In addition, availability of the IUD increased in the nine SILAIS included in the previous survey, primarily in Boaco, Matagalpa, and Jinotega.

Stockouts of Contraceptives

- 26.6% of the public health facilities that regularly offer oral contraceptives ran out of the method at least once in the six months preceding the survey and these stockouts lasted a median time of 28 days; furthermore, 40.1% of those facilities that regularly offer injections experienced a 28-day stockout.
- Stockouts of condoms occurred relatively less frequently: 10.3% of the facilities experienced a stockout of condoms that lasted a median time of 25 days.
- A marked variation exists among SILAIS in the number of stockouts of family planning methods experienced. More than 40% of public facilities in Masaya, RAAN and Rivas experienced stockouts of oral contraceptives, while in Boaco and Estelí less than 5% of the facilities had a stockout of this method.
- The problem of stockouts of methods has risen compared to the situation that existed in 2000 in the nine SILAIS included in the previous survey.
- Stockout of family planning methods could be due to an unexpected increase in demand, to seasonal variations in the supply of contraceptives, or to organizational logistical problems. The fact that the private facilities experienced a pattern of stockouts similar to those experienced by the public facilities indicates a general deficit of methods in the country. If it is assumed that the sources of supply of the public facilities are not related to those of the private facilities, this deficit could be due to an unexpected increase in the demand for contraception in the country.

Sexually Transmitted Diseases (STDs), HIV and AIDS

- The majority of public health facilities reported that they provide STD counseling (96.5%) as well as STD consultations (91.9%). 79% offer STD treatment, while a relatively small percentage demonstrated that they were able to offer diagnostic tests (19.7%).
- HIV tests are offered in 8.8% of the public facilities, primarily in hospitals and health centers with beds.
- Diagnostic tests for STDs are primarily provided by hospitals and health centers with beds. Among the 28 health centers with beds, 82% provide counseling, diagnostic tests and STD consultation and treatment.
- Among the nine SILAIS surveyed in 2000, the provision of STD services has increased notably.

Other Services

- Almost all of the public facilities offer general consultations; 40.2% offer emergency care and 16.8% offer pregnancy tests.
- 96% of public hospitals and 32% of health centers with beds provide test for blood transfusions.
- More than 89% of the public facilities offer counseling, pregnancy care and STD/HIV services to adolescents. Also, almost 80% of public facilities offer adolescent-directed services dealing with issues related to self-esteem and violence.
- The availability of services for adolescents and *dispensarizados* increased in relation to the situation in 2000 in the nine SILAIS included in the previous survey.

4.3 Availability of Services: Days of the Week and Hours of the Day

- Curative or urgent care services are generally offered seven days a week in hospitals, whereas services of health promotion or disease prevention are usually offered five days a week in health centers and posts.
- Almost all of the departmental hospitals and health centers with beds offer services seven days a week, 24 hours a day. Less than 4% of the health posts offer services 24 hours a day. Almost all health posts offer services 5 days a week.

4.4 Staff Availability

- Staff composition varies according to the type and complexity of the facility. The greatest diversity of staff is found in hospitals. In contrast, the staff composition in health posts is very simple. Most of the health posts only have an auxiliary nurse and less than half of the posts have a physician.
- Auxiliary nurses constitute the most common type of health professional at all levels of care: 85% of the public facilities have at least one auxiliary nurse. More than 97% of the health centers and hospitals have this type of staff member.

Characterization of Public Health Facility Staff

- The average age of physicians is 32 years and 50% are women. 53% of public facility physicians are married or in union and 63% have children. Also, 28% are currently in school. Only 35.3% of them work in the *municipio* that they are originally from.
- The average age of nurses is 33 years and 96% are women. 53% of these nurses are married or in union and a little more than 76% have children. Also, 94.4% have post-secondary education, 40% are currently in school and almost half work in the *municipio* that they are originally from.
- The average age of auxiliary nurses is 35 years, 91% are women, approximately 59% are married or in union and almost 90% have children. However, only 23.8% of them have received any post-secondary education, 28.6% are currently in school and 61.1% are working in the *municipio* that they are originally from.

Staff Rotation

- Physicians have spent an average of 2.3 years in their current positions, while nurses have spent 3.3 years and auxiliary nurses have spent 5.3 years in their current positions. The number of years working in the current facility is, however, notably higher: 3.4 for physicians, 6.1 for nurses and 7.6 for nurse's assistants. The differences could indicate that there exists inter-facility rotation of jobs within the facilities themselves.
- Physicians serve an average of 6.4 years with MINSA, while nurses serve 10.5 years and auxiliary nurse serve 13.2 years with MINSA. The differences in the number of years spent in the facility indicate staff rotation between different facilities.
- The amount of time spent working in the health sector is very similar to the amount of time working for MINSA, a fact which highlights the important role of the MINSA as the primary employer of health personnel in the country.

Staff Housing

- Only 32% of physicians own the houses they live in, while 58% of the nurses and 55% of the nurse's assistants own their own houses.
- 13% of physicians and 7% of nurses and auxiliary nurses live in housing provided by MINSA. However, approximately 20% of health personnel live in housing provided by a family member or by the community.
- The pattern of housing ownership responds to the staff rotation, the number of years working in a particular facility and whether the staff works in the *municipio* of origin.

4.5 Staff Training

Training in Maternal Health

- 36.9% of health facilities have at least one staff member that has received training in delivery care in the year preceding the survey. Of the 41.6% of facilities that reported to offer delivery care, almost half (48.5%) had at least one staff member that had received this training.
- 47.3% of all public facilities have at least one person that received training in obstetric complications in the year preceding the survey. This percentage increases to 55.1% when only those facilities that reported that they offer delivery care (41.6% of the total) are considered. These results indicate that the training includes staff that works in facilities that do not offer delivery services. This situation would enable the health staff to respond to emergency situations and increases their chances of being promoted. It also creates the conditions for an expansion of delivery services in the future.

Training in Child Health, Malaria, and Adolescent Health

- Almost 70% of the public facilities have at least one staff member that has received training in AIEPI in the year preceding the survey.
- With the exception of Managua, Río San Juan and RAAS, more than 50% of the facilities in each SILAIS has at least one staff member that has received training in AIEPI in the year preceding the survey. Of particular note are the SILAIS of Chinandega, Jinotega and Carazo where these percentages are above 90%.
- 48.1% of the public facilities have at least one staff member that has received training in malaria treatment within the year preceding the survey.

Training in Family Planning

- 62% of health facilities have personnel with training in family planning, including family planning counseling.

Training, according to the Health Staff Survey

- A little more than 20% of the personnel received training in adolescent services and family planning counseling in the year before the survey.
- 30% of the auxiliary nurses and 31.8% of the physicians received training in AIEPI in the 12 months preceding the survey.

Training in Domestic Violence

- 51% of the public facilities had at least one staff member that had received training in domestic violence in the year preceding the survey.
- 35% of the staff members claimed to have received training on this topic and a little more than 90% reported that they question their patients when they suspect that violence is occurring in the family. Furthermore, more than 70% of the personnel know of a place to which to refer victims of violence.

4.6 Group Talks

- Over 95% of health centers and posts offer group talks covering maternal and child health and family planning.
- The range of topics covered in the group talks is notably wide.
- Group talks on the topic of breastfeeding are offered in almost every facility that offers group talks. Other frequently offered health topics include family planning, hygiene during pregnancy and nutrition.
- Just as in the 2000 HFS, a high level of group talks is being provided; however, a wider range of topics offered in discussions was observed in 2001.

4.7 Supervision

- A little over 39% of the public facilities had received a supervisory visit in integrated maternal and child health care (AIMN) in the three months preceding the survey. However, a little over 35% of health posts reported either not having had a supervisory visit, the visit had taken place more than six months prior to the survey or they were not sure when it took place.
- 20% of public health facilities had not received a nutrition supervisory visit in the six months prior to the survey. However, it should be noted that in some SILAIS the supervision of nutrition is included in the supervision of AIMN.

4.8 Information, Education and Communication (IEC)

- The health centers are the type of facilities that rely most on announcements about the services that they offer, principally in immunizations, AIEPI and family planning. The hospitals use announcements less frequently. Likewise, the prevalence of announcements is relatively low among the posts.
- A little more than 90% of facilities use flipcharts and almost two-thirds have posters on AIEPI. 76% of the public units have posters on reproductive health.
- In general, there is a high availability of informative material in all SILAIS.

4.9 Community Outreach Services

- More than 92% of the health centers and posts offer community outreach services. The number of communities served by outreach services varies widely by facility type. Health centers with beds serve a median number of 16 communities, while the posts serve a median of six communities each.

4.10 Equipment and Basic Infrastructure

- All of the hospitals and almost all of the health centers reported that they have electricity, while only 57.4% of the posts have this service.
- The availability of electricity increased on almost all of the SILAIS included in the previous survey, particularly in Jinotega (from 49.1% in 2000 to 85.2% in 2001) and Madrid (from 53.6% to 60.6%.)
- 67% of the public facilities have treated water available.
- 55% of the public units have a functioning internal water system. Less than half of the posts have this infrastructure and 56% of them have potable water for less than four hours per day.
- The SILAIS of Managua, Carazo and Masaya have the highest prevalence of water infrastructure (81.7%, 77.4% and 76.9% of their public facilities have water infrastructure, respectively), while the RAAN, RAAS and Madriz have the least availability of water systems (9.7%, 18.2% and 36.4% of public facilities, respectively).
- The availability of internal water systems increased notably in relation to the situation in 2000, particularly in Jinotega (from 49.1% in 2000 to 64.8% in 2001), Boaco (from 40.6% to 51.6%), Matagalpa (from 49.4% to 59.8%) and Nueva Segovia (from 32.8% to 46.8%).
- Among public facilities, the most common method of solid waste disposal is incineration (70.4%), followed by public collection (19.4%). However, only 30% of these units have an incinerator.
- 68.1% of the public facilities have a refrigerator, while 85.2% of them have a *termo* for vaccines and only 40.4% have a cold box.
- In relation to the situation in 2000, improvements in the availability of refrigerators in almost all of the nine SILAIS included in the HFS-2000 were observed. In Boaco the percentage of public facilities with refrigerators increased from 71.9% to 90.3%; in Leon, it increased from 57.1% to 67.7%; in Madriz, from 57.1% to 66.7%; and in Nueva Segovia, from 67.2% to 74.2%.
- Only 30.3% of the public facilities have a radio and only 16.9% have a telephone. A little more than 60% of the public facilities have neither a radio nor a telephone.
- The availability of radios varies notably per SILAIS. In Carazo, Boaco, Matagalpa and Jinotega, more than 80% of the public units have a radio, while in Masaya, Chontales and Granada, almost none have this resource.
- Relative to the situation in 2000, important increases in the availability of radios in almost all nine SILAIS included in both surveys was observed. The increases are particularly important in Boaco (from 25% to 93.5%), Matagalpa (from 12% to 80.4%) and Jinotega (from 11.3% to 88.9%).
- Only 16.2% of the public facilities reported that they have transportation for emergency situations. The health posts have the least availability of this resource: only 2.6% of health posts have transportation for emergency situations.

4.11 Property title

- 57.3% of the public health facilities have property titles. The greatest lack of titles occurs among the health posts.

4.12 Equipment

- 69.2% of the health posts and centers have gynecologic examination tables, but less than half (48.4%) have the five large speculums recommended by the technical norm.
- Despite the fact that 69.2% of the centers and 34.5% of the health posts reported that they provide delivery services, only 4.9% of them have all of the delivery equipment recommended by MINSA technical norm.
- Furthermore, although more than 96% of the health centers and 56.3% of the posts reported that they regularly offer IUDs, only 2.6% of these establishments have the complete equipment to provide this method of contraception.
- A little more than 80% of the centers and posts have a scale and a pediatric scale.
- Only 10.3% of the centers and posts have complete equipment for minor surgery.

- In relation to the situation among the nine SILAIS included in the HFS-2000, notable increases in the availability of scales, pediatric scales, gynecologic tables, large speculums, obstetric tape, lamps and sterilizers were noted. Furthermore, a small increase in the availability of the complete equipment for delivery, minor surgery and administration of oral rehydration was registered.

4.13 Supplies and Stockouts of Medications and Materials

Basic Medicines

- Ampicillin and ibuprofen are the basic medicines least likely to be carried by the facilities. The hormonal contraceptive methods that are least likely to be stocked are the oral contraceptive dihydroprogesterone acetophenide and the injectable estradiol enanthate. In general, the health post is the type of health facility that is the least well-stocked with medicines.
- Stockouts of amoxicillin, ibuprofen and ampicillin were found in more than 54% of the health centers and posts.
- Stockouts were the least prevalent in the facilities in Estelí, Madriz and Boaco, while in they occurred the most widely in RAAN.

Vaccines

- A little more than 89% of the health centers and posts are stocked with basic vaccines for *pentavalente*, MMR, polio, DPT, DT and BCG.
- The percentage of facilities indicating shortages of vaccinations in the six months prior to the survey is relatively small. Less than 10% of the centers and posts indicated that they had run out of vaccines for *pentavalente*, MMR, polio, DPT, DT, and BCG.

Supplies

- 3.6% of the health centers with beds, 39% of the health centers without beds, and 59.4% of the health posts reported that they do not carry individually packed sterile umbilical clamps. 33% of health centers and posts do not stock IUDs (Copper T). 28% do not carry surgical glove #7 and lamp fixtures (*fijador de lámina*).
- In comparison to other types of facilities, the greatest prevalence of stockouts of materials requiring periodic replacement occurs among health posts.
- Surgical glove #7 was the supply that was most frequently out-of-stock.

Reagents and Other Laboratory Supplies

- The reagents least commonly stocked by health centers are those that are necessary to perform *Biometría Hemática Completa*, malaria tests, and BAAR.